

DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER PROTECTION BUREAU
Metcalf Building, Helena, Montana 59620
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ENVIRONMENTAL ASSESSMENT (EA)

Division/Bureau: Permitting & Compliance Division, MGWPCS Permits;

Project or Application: Ramshorn View Estates Subdivision Homeowners' Association; MGWPCS Permit No. MTX000103

Description of Project: The renewed permit authorizes the discharge of treated residential-strength wastewater from Ramshorn View Estates Subdivision (RVES), located south of Big Sky, Montana. This is a 74-lot subdivision discharging a potential combined average daily flow of 14,800 gallons per day (gpd) of treated wastewater. There are two separate community wastewater systems that collect, treat and dispose of residential strength wastewater. Community System #1 (CS-1) serves 38 residential lots and 1 commercial lot. Community System #2 (CS-2) serves 26 residential lots. Raw wastewater receives primary treatment in individual septic tanks which gravity feed to a lift station that pumps the wastewater into recirculation tanks at each community system. From the recirculation tanks, the wastewater receives Level II treatment in recirculating sand filters (RSFs). Effluent is pressure-dosed to the subsurface drainfields and discharges to the ground water.

The average daily flow for the CS-1 treatment system that discharges to Outfall 001 is 9,600 gpd, each. The average daily flow for the (CS-2) treatment system that discharges to Outfall 002 is 5,200 gpd. The location of Outfall 001 is 45° 14' 35" North latitude and 111° 15' 15" West longitude, in the northern portion of the subdivision. The location of Outfall 002 is 45° 14' 27" North latitude and 111° 15' 15" West longitude, in the south-central portion of the subdivision. Standard 500-foot ground water mixing zones will be permitted for each of these outfalls. The discharge is to ground water, which is classified "Class I" by the Montana Groundwater Quality Standards.

Benefits and Purpose of Proposal:

Adequate treatment of residential-strength wastewater before discharging to ground water.

Description and analysis of reasonable alternatives whenever alternatives are reasonably available and prudent to consider:
None

Listing and appropriate evaluation of mitigation, stipulations and other controls enforceable by this or another government agency:
See Fact Sheet

Affected Environment and Effects from the Proposed Project:

<u>Key to Rank</u>	
NA	<i>Not applicable</i>
N	<i>No effects</i>
B	<i>Potentially beneficial effects</i>
A	<i>Potentially adverse effects</i>
M	<i>Corrective action required</i>
P	<i>Additional permits will be required</i>

Rank	Consideration	Remarks
PHYSICAL AND BIOLOGICAL ENVIRONMENT		
N	1. SOIL SUITABILITY, TOPOGRAPHIC AND/OR GEOLOGIC CONSTRAINTS (soil moisture, unstable soils or geologic conditions, steep slopes, erosion potential, subsidence potential, seismic activity)	Discharge will increase moisture in the unsaturated zone. No known low permeability layers exist between the drainfield and the shallow ground water. The area is seismically active, but the site is not within any known active (or formerly active) landslide areas. The topography in this area is relatively flat across the drainfields.
NA	2. HAZARDOUS FACILITIES (power lines, hazardous waste sites, distances from explosive and flammable hazards including chemical/petroleum storage tanks, underground fuel storage tanks and related facilities such as natural gas storage facilities and propane tanks)	
N	3. AIR QUALITY (effects to or from project, dust, odors, emissions)	The subsurface discharge will not affect air quality. No significant impacts have been determined.
N	4. GROUNDWATER RESOURCES & AQUIFERS (quality/nondegradation, quantity/reliability, distribution, uses/rights, number of aquifers, mixing zones)	There will be no significant degradation outside of the mixing zones for outfall 001 and 002 (see Statement of Basis for details and calculations). The deep aquifer used for water supply at RVES will not be affected by the discharges from the drainfields because the vertical hydraulic gradient is upward (i.e., confined aquifer) from the bedrock aquifer into the shallow alluvial aquifer.
N	5. SURFACE WATER RESOURCES (quality/nondegradation, quantity/reliability, distribution, uses/rights, storm water controls, source of community supply, community treatment, mixing zones)	The nearest hydraulically downgradient surface water is the Gallatin River, which is gaining in the reach closest to the subdivision. Outfall 001 and 002 are each approximately 1,000 feet west of the river. Ground water flowing beneath the site mixes with the effluent discharge, as well as diluted with surface water when it mixes at the river bank, potentially increasing the daily load of nitrate + nitrite (as N) to the river. However, potential impacts to surface waters were determined non-significant (see Statement of Basis for details and calculations).
N	6. VEGETATION AND WILDLIFE SPECIES AND HABITATS, INCLUDING FISHERIES AND AQUATIC RESOURCES (threatened, endangered, sensitive species, prime habitat, population stability, potential for human wildlife conflicts, effectiveness of post-disturbance plans)	Deep-rooted vegetation will be excluded from the surface areas above the RSFs and the subsurface drainfields. To minimize clogging.
N	7. UNIQUE, ENDANGERED, FRAGILE, OR LIMITED ENVIRONMENTAL RESOURCES (biologic, topographic, wetlands (within one mile), floodplains (within one mile), scenic rivers, natural resource areas, etc.)	RVES is separated from the floodplain of the Gallatin River by Highway 191. There will be no direct effects of the subdivision on the floodplain surface adjacent to the river.
N	8. LAND USE (waste disposal, agricultural lands [grazing, cropland, forest lands, prime farmland], recreational lands [waterways, parks, playgrounds, open space, federal lands], access, commercial and industrial facilities [production & activity, growth or decline], growth, land-use change, development activity)	Outfall 001 and 002 are in open space areas within the subdivision.
N	9. HISTORICAL, CULTURAL, & ARCHEOLOGICAL (sites, facilities, uniqueness, diversity)	No new construction is associated with this permit renewal.
N	10. AESTHETICS (visual quality, nuisances, odors, noise)	Individual septic tanks, recirculating sand filters (RSFs), and drainfields are subsurface and are not visible and will not create aesthetic issues.

N	11. DEMANDS ON OR CHANGES IN ENVIRONMENTAL RESOURCES INCLUDING LAND, WATER, AIR, OR ENERGY USE (need for new or upgraded energy sources, potential for recycling, etc.) {See (4), (5), and (8).}	Potable water is provided onsite via deep domestic supply wells completed in the confined bedrock aquifer.
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Rank	Consideration	Remarks
IMPACTS ON THE HUMAN POPULATION		
NA	12. CHANGES IN DEMOGRAPHIC CHARACTERISTICS (population quantity, distribution and density, rate of change)	No changes in the development are associated with this permit renewal.
N	13. GENERAL HOUSING CONDITIONS (quality, quantity and affordability)	64 individual residential lots and one commercial lot, which is equal to 10 single-family residences.
NA	14. POTENTIAL FOR DISPLACEMENT OR RELOCATION OF BUSINESS OR RESIDENTS	Any increase in housing and/or businesses has been absorbed by the community, because this is a permit renewal for a subdivision that is at, or very near full build-out.
N	15. PUBLIC HEALTH AND SAFETY (medical services and facilities, police, fire protection and hazards [see (2)], emergency medical services [see (8), LAND USE for waste disposal])	These two community wastewater treatment systems are properly operated and maintained and should therefore, reduce the potential for health hazards associated with individual (private) domestic wastewater discharges.
N	16. LOCAL EMPLOYMENT AND INCOME PATTERNS (quantity and distribution of employment, economic impact)	
NA	17. LOCAL AND STATE TAX BASE AND REVENUES	
NA	18. EFFECTS ON SOCIAL STRUCTURES AND MORES (social conventions/standards of social conduct), DEMANDS ON SOCIAL SERVICES (law enforcement, educational facilities [libraries, schools, colleges, universities], welfare, etc.)	
NA	19. TRANSPORTATION NETWORK (condition and use of roads, traffic flow conflicts, rail, airport compatibility, etc.)	
N	20. CONSISTENCY WITH LOCAL ORDINANCES, RESOLUTIONS, OR PLANS (conformance with local comprehensive plans, zoning or capital improvement plans)	RVES is located within the Gallatin County-Big Sky Zoning District. Residential and commercial zoning boundaries within this district were adjusted initially in order to accommodate the development.
NA	21. REGULATORY RESTRICTIONS ON PRIVATE PROPERTY RIGHTS (<i>Are we regulating pursuant to a police power? Does the Agency action restrict the use of the property beyond the minimum necessary to achieve compliance with the Act? What are the costs of such additional restrictions resulting from proposed permit conditions? Are there other, less restrictive ways of achieving the same goal?</i> See your assigned legal counsel for assistance preparing this section. [See the Private Property Assessment Act checklist accompanying this permit for details.]	The restrictions imposed by the MGWPCS discharge permit are not pursuant to police power.

Other groups or governmental agencies contacted or which may have overlapping jurisdiction:
Permitting & Compliance Division, Subdivisions Bureau and Public Water Supply

Public Involvement:
Thirty-day public comment period

Individuals or groups contributing to this EA:
Gallatin County

Summary of Issues:
See Statement of Basis

Summary of Potential Effects:
See Statement of Basis

Cumulative Effects:
There are multiple ground water mixing zones for nitrate (as N). The two standard 500-foot ground water mixing zones do not overlap. Therefore, there are no unresolved analyses for cumulative effects.

Recommendation:
Issue Ground Water Discharge Permit

Recommendation for Further Environmental Analysis:

☐ Prepare an EIS ☐ Prepare a more detailed EA ☒ No further analysis

EA prepared by: Pat Potts Date: May 9, 2008

Bureau Check-off

AWMB _____	CSB _____	EMB _____
IEMB _____	WPB _____	Other _____

Approved by:

Jenny Chambers, Chief Bureau
Water Protection Bureau
Permitting & Compliance Division

(Print name and title)

(Signature)

(Date)